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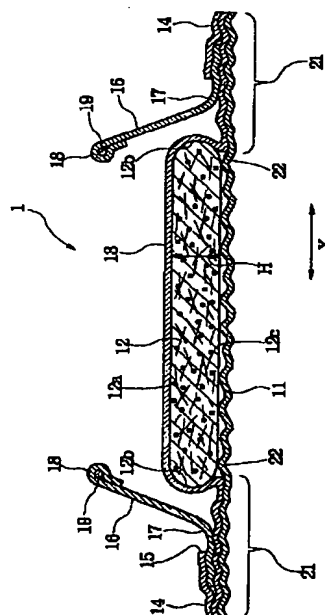
(54)【発明の名称】 使い捨ておむつ

(57)【要約】

【課題】 パンツ型や開放型などの使い捨ておむつにおいて、従来は吸収コアがトップシートに完全に保持されていなかったため、装着中にコアに振じれ、片寄り、縞れが生じ、吸収コアとトップシートとの間に隙間が形成され、吸収機能が低下するおそれがあった。

【解決手段】 外側シート11に横方向の弾性収縮機能を持たせるとことにより、トップシート13と外側シート11との接合境界22、22がトップシート12の側端12bよりも内側に入り込み、トップシートにより吸収コア12が確実に保持される。よって装着者の動きによって吸収コア12が動きにくくなり、吸収コア12とトップシート11との間に剥がれなどが生じにくくなる。

図3



【特許請求の範囲】

【請求項1】 装着者の腹側に当てられる前面部と、股間部に当てられる中間部と、背側に当てられる後面部とを有し、前記本体の前面部から後面部に向う方向が縦方向、これと直交する方向が横方向とされた使い捨ておむつにおいて、

受液側に向けられる少なくとも吸収コアの上側表面の横方向の中心を覆う部分が透液性であるトップシートと、前記横方向の両側で前記トップシートと直接的にまたは間接的に接合された外側シートと、前記トップシートと前記外側シートとの間に介在する吸収コアとを有し、少なくとも前記中間部での縦方向の中心を含む領域では、前記トップシートと前記外側シートとの接合境界が、前記吸収コアの横方向の両側端よりも横方向の中心側へ入り込んでいることを特徴とする使い捨ておむつ。

【請求項2】 吸収コアを覆う透液性のトップシートは、透液シートとその横方向の両側に他のシートが直接的にまたは間接的に接合されて形成されており、前記他のシートと前記外側シートとの接合境界が、前記吸収コアの横方向の両側端よりも横方向の中心側へ入り込んでいる請求項1記載の使い捨ておむつ。

【請求項3】 少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記透液シートまたは前記他のシートが接合されている請求項1または2記載の使い捨ておむつ。

【請求項4】 少なくとも前記中間部での縦方向の中心を含む領域では、横方向の両側に位置している前記透液シートまたは前記他のシートと前記外側シートとの接合境界を横方向の中心側へ寄らせる弾性付与手段が設けられている請求項1～3のいずれかに記載の使い捨ておむつ。

【請求項5】 前記透液シートまたは前記他のシートは横方向へ弾性収縮しないか、またはおむつの自由状態での前記横方向の弾性収縮歪みは、前記透液シートまたは前記他のシートよりも弾性付与手段の方が大きく設定されている請求項4記載の使い捨ておむつ。

【請求項6】 装着者の腹側に当てられる前面部と、股間部に当てられる中間部と、背側に当てられる後面部とを有し、前記本体の前面部から後面部に向う方向が縦方向、これと直交する方向が横方向とされた使い捨ておむつにおいて、

受液側に向けられる少なくとも吸収コアを覆う部分が透液性であるトップシートと、前記横方向の両側で前記トップシートと直接的にまたは間接的に接合された外側シートと、前記トップシートと前記外側シートとの間に介在する吸収コアとを有し、

少なくとも前記中間部での縦方向の中心を含む領域では、前記トップシートと前記外側シートとの接合境界を横方向の中心側へ寄らせる弾性付与手段が設けられ、前記トップシートは横方向へ弾性収縮しないか、またはお

むつの自由状態での前記横方向の弾性収縮歪みが前記トップシートよりも弾性付与手段の方が大きく設定されており、

且つ少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記トップシートが接合されていることを特徴とする使い捨ておむつ。

【請求項7】 吸収コアを覆う透液性のトップシートは、透液シートの横方向の両側に他のシートが直接的にまたは間接的に接合されて形成されており、

前記透液シートおよび前記他のシートは横方向へ弾性収縮しないか、またはおむつの自由状態での前記横方向の弾性収縮歪みが前記透液シートおよび前記他のシートよりも弾性付与手段の方が大きく設定されており、

且つ少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記透液シートまたは前記他のシートが接合されている請求項6記載の使い捨ておむつ。

【請求項8】 前記外側シートは、横方向へ弾性収縮する弾性収縮性シートであり、このシートの弾性収縮力が前記弾性付与手段とされている請求項4～7のいずれかに記載の使い捨ておむつ。

【請求項9】 前記弾性付与手段は、横方向への弾性収縮力を発揮する弾性部材であり、この弾性部材は、前記吸収コアと外側シートとの間および外側シートの外面のいずれかにおいて横向きに伸長させた状態で固着されている請求項4～7のいずれかに記載の使い捨ておむつ。

【請求項10】 前記本体の受液側には、縦方向に延び且つ横方向に間隔を開けて配置された防漏カフが設けられ、

前記防漏カフは、縦方向に沿って前記本体に固定される固定端部および自由端部を有するシートと、前記自由端部またはその近傍で前記シートに取付けられて前記縦方向への収縮力を発揮する弾性部材とを有し、

少なくとも前記中間部での縦方向の中心を含む領域では、前記防漏カフの固定端部が、吸収コアの横方向の両側端から離れており、この両側端で吸収コアに液を吸収可能とされている請求項1～9のいずれかに記載の使い捨ておむつ。

【請求項11】 前記本体の受液側には、縦方向に延び且つ横方向に間隔を開けて配置された防漏カフが設けられ、

前記防漏カフは、縦方向に沿って前記本体に固定される固定端部および自由端部を有するシートと、前記自由端部またはその近傍で前記シートに取付けられて前記縦方向への収縮力を発揮する弾性部材とを有し、

防漏カフを形成する前記シートが、前記透液シートの横方向の両側に接合された前記他のシートとして使用されている請求項2または7記載の使い捨ておむつ。

【請求項12】 前記前面部の横方向の両側部と、前記

後面部の横方向の両側部とが互いに接合され、前記前面部と後面部のそれぞれの縁部でウェスト開口部が形成され、前記中間部の両側部でレッグ開口部が形成されて、前記本体がパンツ型を成している請求項1～11のいずれかに記載の使い捨ておむつ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、パンツ型またはオープン型の使い捨ておむつに係り、特にトップシートにより吸収コアを確実に保持できるようにした使い捨ておむつに関する。

【0002】

【従来の技術】図6は従来のパンツ型おむつまたはオープン型おむつの股間部に当てられる部分の断面図である。

【0003】図6に示すように、この種の使い捨ておむつ100は、装着者側（受液側）に向けられる透液性のトップシート101と、外側に向けられる不透液性の外側シート102とを有し、トップシート101と外側シート102は、おむつの横方向の両側領域100a、100aで互いに接合されている。また横方向の中心領域100bでは、前記トップシート101と外側シート102との間に、パルプなどの繊維素材を主体とし高吸収性樹脂を含んだ吸収コア103が介在している。

【0004】この種の使い捨ておむつの従来の製造工程では、平面状に展開した外側シート102の上に吸収コア103を設置し、その上に平面状に展開したトップシート101を載せる。このとき、従来では、トップシート101を接着する領域が、前記両側領域100a、100aでのトップシート101と外側シート102との接着、および受液側の隆起上面100cでの、トップシート101と吸収コア103の表面103aとの接着に限られている。

【0005】すなわち、従来はトップシート101の接着作業を上下方向の加圧のみで行なっており、その結果、トップシート101を前記両側領域100aや隆起上面100cのような水平面でのみ接着し、吸収コア103の両側端103cのように水平面でない部分に対してトップシート101を接着していない。

【0006】このように吸収コア103の両側端103cとトップシート101とを接着しておらず、さらに、吸収コア103に厚みがあるため、吸収コア103の両側端103c、103cとトップシート101との間に空間104、104が形成されやすくなっている。

【0007】

【発明が解決しようとする課題】図6に示すように、従来の使い捨ておむつでは、吸収コア103の両側端103c、103cとトップシート101とが接着されておらず、しかも両側端103c、103cと、トップシート101との間に空間104、104が形成されている

ため、トップシート101による吸収コア103の保持が不十分である。特に図6の左右横方向での吸収コア103の保持力が弱くなっている。

【0008】この使い捨ておむつが装着された状態で、装着者が動くと、吸収コア103に捩り力や横方向への片寄り力さらには撓れ力が作用する。特にパンツ型おむつでは、装着者が使い捨ておむつを装着した状態で歩いたり這ったりするため、前記吸収コア103に与えられる前記力が大きくなる。

【0009】前記力が継続的に作用していると、おむつの前記中央領域100bで、吸収コア103が捩じれたり、片寄りを発生する。その結果、吸収コア103の両側端103c、103cとトップシート101との空間104、104が広がりやすい。さらには吸収コア103が左右どちらかの側に撓ると、吸収コア103の表面103aに皺が発生し、この皺の部分では吸収コア103の表面103aとトップシート101との間の接着が剥がれ、表面103aとトップシート101との間に浮きが発生するおそれがある。

【0010】上記のような空間104の広がりや、表面103aとトップシート101との間の浮きが発生すると、トップシート101に与えられた尿などの液が吸収コア103に効率よく吸収されなくなり、おむつでの尿などの横漏れの原因になる。

【0011】本発明は上記従来の課題を解決するものであり、トップシートによる吸収コアの保持、特に横方向での保持を安定させて、おむつ内で吸収コアの捩じれ、片寄りまたは撓れが発生しにくいようにして、吸収コアで吸収機能の低下を防止できるようにした使い捨ておむつを提供することを目的としている。

【0012】

【課題を解決するための手段】第1の本発明は、装着者の腹側に当てられる前面部と、股間部に当てられる中間部と、背側に当てられる後面部とを有し、前記本体の前面部から後面部に向う方向が縦方向、これと直交する方向が横方向とされた使い捨ておむつにおいて、受液側に向けられる少なくとも吸収コアの上側表面の横方向の中心を覆う部分が透液性であるトップシートと、前記横方向の両側で前記トップシートと直接的にまたは間接的に接合された外側シートと、前記トップシートと前記外側シートとの間に介在する吸収コアとを有し、少なくとも前記中間部での縦方向の中心を含む領域では、前記トップシートと前記外側シートとの接合境界が、前記吸収コアの横方向の両側端よりも横方向の中心側へ入り込んでいることを特徴とするものである。

【0013】なお、前記トップシートと外側シートは直接に接着接合されていてもよいし、間に他のシートを介在させて接着されてもよい。またトップシートは少なくとも吸収コアを覆う部分が透液性であればよい。

【0014】第1の本発明では、トップシートが、吸収

コアの受液側表面のみならず吸収コアの両側端に密着し、さらにトップシートが吸収コアの裏面側の両端部に入り込んでいる。よって、トップシートで吸収コアを横方向の両側から包み込むように拘束でき、吸収コアの握じれ、片寄り、および縞れが生じにくくなる。

【0015】また、吸収コアを覆う透液性のトップシートは、透液シートとその横方向の両側に他のシートが直接的にまたは間接的に接合されて形成されており、前記他のシートと前記外側シートとの接合境界が、前記吸収コアの横方向の両側端よりも横方向の中心側へ入り込んでいるものであってもよい。

【0016】ここで、少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記透液シートまたは前記他のシートが接合されていることが好ましい。

【0017】また、通常は吸収コアの受液側の表面とトップシートも互いに接着される。さらに吸収コアの裏面側と外側シートとを接着すると、さらに吸収コアをおむつ上で確実に保持できるようになる。

【0018】第1の本発明では、前記トップシートまたは前記他のシートを吸収コアの表面から両側端を包むように加圧しまたは成形してから、トップシートと外側シートとを横方向の両側部で接合してもよい。

【0019】ただし、少なくとも前記中間部での縦方向の中心を含む領域では、横方向の両側に位置している前記透液シートまたは前記他のシートと前記外側シートとの接合境界を横方向の中心側へ寄らせる弾性付与手段が設けられていると、トップシートで吸収コアの両側端を包み込む構造を形成しやすい。

【0020】この場合、前記透液シートまたは前記他のシートは横方向へ弾性収縮しないか、またはおむつの自由状態での前記横方向の弾性収縮歪みは、前記透液シートまたは前記他のシートよりも弾性付与手段の方が大きく設定されていることが好ましい。

【0021】このようなトップシートまたは他のシートと弾性付与手段を組み合わせることににより、前記弾性付与手段の収縮力を利用して、トップシートまたは他のシートで吸収コアの両側端を包む構造を実現しやすくなる。

【0022】また第2の本発明は、装着者の腹側に当てられる前面部と、股間部に当てられる中間部と、背側に当てられる後面部とを有し、前記本体の前面部から後面部に向う方向が縦方向、これと直交する方向が横方向とされた使い捨ておむつにおいて、受液側に向けられる少なくとも吸収コアを覆う部分が透液性であるトップシートと、前記横方向の両側で前記トップシートと直接的にまたは間接的に接合された外側シートと、前記トップシートと前記外側シートとの間に介在する吸収コアとを有し、少なくとも前記中間部での縦方向の中心を含む領域では、前記トップシートと前記外側シートとの接合境界

を横方向の中心側へ寄らせる弾性付与手段が設けられ、前記トップシートは横方向へ弾性収縮しないか、またはおむつの自由状態での前記横方向の弾性収縮歪みが前記トップシートよりも弾性付与手段の方が大きく設定されており、且つ少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記トップシートが接合されていることを特徴とするものである。

【0023】また、吸収コアを覆う透液性のトップシートは、透液シートの横方向の両側に他のシートが直接的にまたは間接的に接合されて形成されており、前記透液シートおよび前記他のシートは横方向へ弾性収縮しないか、またはおむつの自由状態での前記横方向の弾性収縮歪みが前記透液シートおよび前記他のシートよりも弾性付与手段の方が大きく設定されており、且つ少なくとも前記中間部での縦方向の中心を含む領域では、前記吸収コアの前記横方向の両側端に、前記透液シートまたは前記他のシートが接合されているものであってもよい。

【0024】この第2の発明は、トップシートまたは他のシートと外側シートとの接合境界を、横方向の中心に寄らせる弾性付与手段を設けることを前提としたものであり、さらに吸収コアの前記横方向の両側端と前記トップシートまたは他のシートとを接合している。

【0025】この第2の発明は、弾性付与部材を使用することで、吸収コアの両側端をトップシートまたは他のシートで確実に包むことができ、しかも吸収コアの両側端とトップシートまたは他のシートとの接合により、おむつ内での吸収コアの縞れなどが生じにくくなる。

【0026】上記において、前記外側シートは、横方向へ弾性収縮する弾性収縮性シート、例えば収縮性不織布または収縮性フィルムなどであり、このシートの弾性収縮力が前記弾性付与手段とされている。

【0027】あるいは、前記弾性付与手段は、横方向への弾性収縮力を発揮する弾性部材、例えば複数の弾性バンドであり、この弾性部材は、前記吸収コアと外側シートとの間および外側シートの外面のいずれかにおいて横向きに伸長させた状態で固着されている。

【0028】さらに第1の本発明と第2の本発明では、前記本体の受液側には、縦方向に延び且つ横方向に間隔を開けて配置された防漏カフが設けられ、前記防漏カフは、縦方向に沿って前記本体に固定される固定端部および自由端部を有するシートと、前記自由端部またはその近傍で前記シートに取付けられて前記縦方向への収縮力を発揮する弾性部材とを有し、少なくとも前記中間部での縦方向の中心を含む領域では、前記防漏カフの固定端部が、吸収コアの横方向の両側端から離れており、この両側端で吸収コアに液を吸収可能とされていることが好ましい。

【0029】さらには、前記本体の受液側には、縦方向に延び且つ横方向に間隔を開けて配置された防漏カフが

設けられ、前記防漏カフは、縦方向に沿って前記本体に固定される固定端部および自由端部を有するシートと、前記自由端部またはその近傍で前記シートに取付けられて前記縦方向への収縮力を発揮する弾性部材とを有し、防漏カフを形成する前記シートが、前記透液シートの横方向の両側に接合された前記他のシートとして使用され、この他のシートと外側シートとの接合境界が吸収コアよりも中心側に入り込んでいたり、あるいは前記他のシートが吸収コアの横方向の両側端に接合されていてもよい。

【0030】さらに本発明は、前記前面部の横方向の両側部と、前記後面部の横方向の両側部とが互いに接合され、前記前面部と後面部のそれぞれの縁部でウエスト開口部が形成され、前記中間部の両側部でレッグ開口部が形成されて、前記本体がパンツ型を成しているものである場合に有効である。

【0031】パンツ型の場合、おむつを装着した状態で、装着者が歩きまたは這いまわるため、股間部に装着される吸収コアがトップシートで保持されていることにより、トップシートの捩じれ、片寄り、縫れを防止でき

る点で有効である。ただし、本発明はオープン型おむつにも適用できる。

【0032】

【発明の実施の形態】図1は本発明の一実施の形態としてパンツ型の使い捨ておむつを展開して透液性シート側から示した斜視図、図2は図1に示したパンツ型の使い捨ておむつを示す斜視図、図3は図1のI-I-I-I線の断面図、図4は弾性付手段が弾性収縮する前の状態を示す断面図、図5は第2の実施の形態を示す使い捨ておむつの断面図である。

【0033】図2に示す本発明の使い捨ておむつ1は、予めパンツ型に成形されたものであり、その成形前の展開状態では、図1に示すようないわゆる砂時計形状である。図1に示す展開状態において、このおむつ1は、使用時に装着者の腹部に当てられる前面部2Aと、使用時に尻部および／または背部に当てられる後面部2Cと、使用時にその両側部4B、4Bが大腿部に当てられ且つ股間部に装着される中間部2Bとを有する。前記前面部2Aから中間部2Bを経て前記後面部2Cに至る方向をY方向（縦方向）とし、それと直交する方向をX方向（横方向）とする。

【0034】この使い捨ておむつ1は、図3の断面図に示すように、外側シート11の上に、吸収コア12が載せられ、その上が透液性のトップシート13で覆われている。またトップシート13の上は不透液性の開口補助シート14で覆われ、この開口補助シート14の中央部に開口する開口窓15内に前記トップシート13が露出している。

【0035】前記外側シート11、トップシート13および開口補助シート14の外形形状は全てほぼ同じ寸法

の砂時計型である。

【0036】前記外側シート11とトップシート13とは、横方向（X方向）の外側領域、および縦方向（Y方向）の外側領域で互いに接着接合されている。この接着接合は例えばホットメルト型接着剤を用いる。図3に示す中間部2Bの断面図では、外側シート11とトップシート13との接合領域を21、21で示している。また外側シート11とトップシート13との接合境界、すなわち前記接合領域21、21の横方向の中心側の端部を

10 符号22、22で示している。

【0037】図3に示すように、使い捨ておむつ1が自由状態のとき、前記接合境界22、22は、吸収コア12の横方向の両側端12b、12bよりも横方向中心側へ入り込んでおり、その結果、吸収コア12の受液側の表面12aおよび吸収コア12の横方向の両側端12b、12bがトップシート13で包み込まれるようにして保持されている。

【0038】また、吸収コア12の表面12aとトップシート13はスパイラル状または波線状に塗布されたホットメルト型接着剤で互いに接着されている。さらに吸収コア12の両側端12b、12bにおいても吸収コア12とトップシート13とがホットメルト型接着剤などで接着されている。

【0039】なお、トップシート13は、吸収コア12の両側端12b、12bにおいてコアの厚さH方向のほぼ全域で接着されていることが好ましいが、少なくともコアの厚さHの半分よりも受液側（図示上側）において吸収コア12の両側端12b、12bとトップシート13とが接着接合されていることが好ましい。

30 【0040】また、吸収コア12の裏面12cと外側シート11とがホットメルト型接着剤などで接着されていてもよい。

【0041】図3に示すように、吸収コア12がトップシート13で包み込まれている構造は、使い捨ておむつ1の縦方向（Y方向）の全域に渡って形成されていることが望ましいが、少なくとも中間部2Bにおいて、図3に示す包み込み構造が構成されていることが必要である。すなわち股間部に当てられる中間部2Bの縦方向の中心O-Oを含む縦方向の所定の長さ範囲において、図3に示す包み込み構造が実現していると、股間部の動きが吸収コア12に作用したときに、吸収コア12がトップシート13により横方向から確実に保持された状態を維持できる。

【0042】よって少なくとも中間部2Bにおいて、吸収コア12に捩じれ、片寄り、および縫れが生じにくくなる。その結果、吸収コア12の側端12bとトップシート13との間、および吸収コア12の表面12aとトップシート13との間に接着剥がれなどによる空隙が生じにくくなり、吸収コア12による吸収機能を十分に発揮できる。また吸収コア12の側端12bとトップシ

ト13とが密着しているため前記側端12bにおいても十分な液吸収機能を発揮できる。

【0043】前記トップシート13は、親水処理された疎水性繊維、あるいは親水性繊維などで形成されたものであり、例えばポイントボンド、エアースルー、スパンボンド、スパンレース不織布などである。その目付けは10～40g/m²である。また、前記開口補助シート14は疎水性繊維で形成されたポイントボンドなどの不織布、あるいは澁水処理された前記ポイントボンド不織布などである。

【0044】この発明の実施の形態では、前記トップシート13と開口補助シート14は、共に横方向(X方向)へ弾性収縮しない不織布で形成されている。

【0045】前記外側シート11は、横方向(X方向)へ弾性収縮可能なものであり、例えば捲縮繊維を80%以上含むポイントボンド、スパンボンド、スパンレースなどの弾性収縮機能を有する伸縮性不織布である。あるいは、外側シート11は、オレフィン系、スチレン系、ウレタン系などの熱可塑性樹脂で形成された弾性収縮機能を有する不透液性の伸縮性フィルムである。いずれにせよ外側シート11の目付け(坪量)は、10～40g/m²である。

【0046】外側シート11として伸縮性不織布を用いる場合、澁水処理などを施して液透過機能を低下させることが好ましい。あるいは伸縮性不織布で形成された外側シートと吸収コア12との間に防水性の樹脂フィルムを介装してもよい。この場合の樹脂フィルムは伸縮性と非伸縮性のいずれでもよい。

【0047】また外側シート11として弾性収縮機能を有する不透液性の伸縮性フィルムを用いる場合、この外側シート11をおむつの最外層シートとしてもよいし、あるいは伸縮性フィルムの外側に不織布を積層し、この不織布を最外層シートとしてもよい。この場合不織布は伸縮性と非伸縮性のいずれであってもよい。

【0048】すなわち、外側シート11として弾性収縮機能を発揮する伸縮性シートを使用すれば、これに積層される他のシートは伸縮性であっても非伸縮性であってもよい。

【0049】吸収コア12は、吸収性素材、例えば粉砕パルプあるいは粉砕パルプと高吸水性ポリマーの混合物などにより形成され、粉砕パルプあるいは粉砕パルプと高吸水性ポリマーとの混合物がティッシュなどの吸収性シートで包まれたものである。

【0050】本発明の実施の形態では、外側シート11とトップシート13とのX方向への弾性収縮歪みの差を利用して、図3に示すように、吸収コア12の表面12aおよび両側端12b、12bをトップシート13で包み込めるようにしている。したがって、前記のように外側シート11が弾性収縮機能を発揮し、トップシート13が弾性収縮機能を発揮しないように構成することが好

ましい。

【0051】ただし、トップシート13が伸縮性を有し、横方向への弾性収縮機能を発揮してもよい。この場合、使い捨ておむつ1の自由状態において、外側シート11の横方向の弾性収縮による歪み量に対し、トップシート13の横方向の歪み量が小さいことが必要である。トップシート13が横方向への弾性収縮歪みを生じない場合も含め、自由状態での外側シート11の横方向の収縮歪み量とトップシート13の横方向の収縮歪み量との差が10%以上で30%以下であることが好ましい。歪み量の差が前記範囲未満であると、トップシート13で吸収コア12を十分に包み込むことができない。また歪み量の差が前記範囲を超えると、吸収コア12に作用する横方向の圧縮力が大きくなりすぎ、吸収コア12に皺が発生するおそれがある。

【0052】なお、歪み量は、外側シート11とトップシート13とを前記接合領域21、21で接合するときの、シートの平面部分の長さをL0、図3に示すように外側シート11が弾性収縮したときの、シートの平面部分の弾性収縮後の長さをL1としたときに、 $(L1-L0)/L0 \times 100$ (%)である。

【0053】また使い捨ておむつ1の横方向(X方向)の両側部4B、4Bの内側には、防漏カフ16、16が設けられている。この防漏カフ16、16は疎水性シートで形成されたものであり、図3に示すように、その基端部はトップシート13と開口補助シート14との間に挟まれており、前記基端部はそれぞれトップシート13と開口補助シート14に接着接合されている。

【0054】図3では、防漏カフ16、16の固定端を符号17、17で示している。図1に示すように、中間部2Bの縦方向(Y方向)の中心O-Oを含む縦方向の所定の長さの範囲で、前記防漏カフ16、16の基端部は前記吸収コア12の横方向の両側端12b、12bから離れた位置にある。また防漏カフ16、16の自由端18、18には、縦方向(Y方向)へ弾性収縮力を発揮する弾性部材19、19が設けられている。

【0055】図3に示すように、この使い捨ておむつ1では、吸収コア12の表面12aと両側端12b、12bにトップシート13が常に密着しているため、トップシート13に与えられた尿などの体液が、トップシート13を透過して表面12aから吸収コア12に吸収されやすく、また横方向両側部に流れた体液も、トップシート13を透過して両側端12b、12bから吸収コア12に吸収されやすい。すなわち吸収コア12の体液を吸収する表面積が非常に広がる。また、少なくとも中間部2Bにおいて、防漏カフ16、16の固定端17、17が吸収コア12の両側端12b、12bから離れているため、おむつの横方向両側に流れた体液は、防漏カフ16と吸収コア12の側端部12bの間に至り、防漏カフ16に阻害されることなく前記側端部12bで吸収さ

れることになる。

【0056】次に、前記使い捨てオムツ1の製造工程を説明する。図4に示すように、外側シート11を横方向（X方向）へ、10～30%の範囲で弾性的に伸長させた状態で、外側シート11の横方向の中央部に吸収コア12を設置する。このとき吸収コア12の裏面12cを外側シート11に接着してもよいし、接着しなくてもよい。

【0057】次にトップシート13を自由状態すなわちX方向へ伸長させることなく、外側シート11および吸収コア12の上に載せる。このときトップシート13の裏面（吸収コア12に向く面）の全域（横方向の全長）にホットメルト型接着剤を塗布しておく。そして、さらにトップシート13の上に防漏カフ16、16の基端部をホットメルト型接着剤を介して設置し、さらにその上から開口補助シート14をホットメルト型接着剤を介して設置する。

【0058】このとき、好ましくは接合領域21、21で各シートを上下から加圧する。また吸収コア12の表面12aにおいてトップシート13の上方から軽く加圧してもよい。

【0059】前記接着剤の塗布および積層工程の後に、外側シート11のX方向への伸長力を除去すると、外側シート11が横方向中央に向けてF方向へ弾性収縮する。このとき、外側シート11とトップシート13との接合境界22、22が横方向（X方向）の中心に向けて接近し、その結果、図3に示すように、前記接合境界22、22が吸収コア12の両側端12b、12bよりも中心側へ入り込む。また外側シート11の前記収縮力で、トップシート13が吸収コア12の両側端12b、12bに押し付けられ、トップシート13の裏面に塗布されている接着剤により前記両側端12b、12bとトップシート13とが互いに接着される。

【0060】次に、前面部2Aの横方向の側部4Aと、後面部2Cの横方向の側部4Cとが互いに接合され、前面部2Aと後面部2Cのそれぞれの縁部、すなわちウエスト端部3Aと3Cでウエスト開口部が形成される。さらに、中間部2Bの両側部4Bではそれぞれレッグ開口部が形成されて、図2に示すようなパンツ型の使い捨てオムツが形成される。

【0061】なお、図1と図2に示す実施の形態では、前記ウエスト端部3Aと3Cに横方向に弾性部材（弾性バンド）31が取付けられ、図2に示すように、前記弾性部材31の弾性収縮力によりウエスト開口部にウエストギャザーが形成される。前記両側部4Bにはレッグ側の弾性部材（弾性バンド）32が取付けられ、図2に示すように、前記弾性部材32の弾性収縮力により、レッグ開口部の周囲にレッグギャザー（レッグ側のカフ）が形成される。さらに、前記レッグ開口部の内側に前記防漏カフ16、16が装着者に向けて立ち上がる。

【0062】次に、図5は本発明の第2の実施の形態の使い捨ておむつを示すものであり、図4に示すのと同様に、横方向へ伸長させた状態を示す断面図である。

【0063】図5に示す実施の形態では、外側シート11が、弾性収縮機能を有しないかあるいは弾性収縮率の小さい不織布または防水性樹脂フィルムで形成されている。ただし、トップシート13と外側シート11との間にX方向へ弾性収縮力を発揮する弾性部材35が介在している。この弾性部材35は横方向に延びる弾性バンドであり、図1に示す中間部2Bの中心O-Oを含む縦方向（Y方向）の所定の長さ範囲において、縦方向に複数本並べられて設けられている。この弾性部材35は、横方向へ10～30%伸ばされた状態でその全長に渡って外側シート11に接着されている。

【0064】図5では、前記弾性部材35がX方向へ10～30%程度伸ばされた状態で、外側シート11に接合されているため、これを自由状態にすると、外側シート11が横方向の中心部に向けて弾性収縮し、接合境界22、22が吸収コア12の両側端部12b、12bよりも横方向の中心側へ移動し、図3と同様に、吸収コア12がトップシート13で包み込まれる。

【0065】なお、前記実施の形態では、外側シート11と吸収コア12の上面に1枚の透液性の不織布などで形成されたトップシート13が設けられているが、このトップシート13は、吸収コア12の上側の表面12aを覆う部分が透液性で、横方向の両側部（両側端12b、12b）を覆う部分が疎水性で非透液性となるような処理がなされていてもよい。

【0066】図6の本発明の他の実施の形態では、トップシート13が、吸収コアを覆う透液シート13aと、その横方向（X方向）の両側に接合された他のシート13bとから構成されている。この他のシート13bは透液性であっても非透液性であってもよい。この場合には、図3に示すように外側シート11が弾性収縮すると、前記他のシート13bと外側シート11との接合境界22、22が吸収コア12の両側端12b、12bよりも中心側に入り込む。そして、前記他のシート13bが、前記吸収コア12の両側端12b、12bに接着接合される。または、図7に示すように、透液シート13aが吸収コア12の両側端12b、12bに接着接合されるようにしてもよい。なお、他のシート13bは開口補助シート14であってもよい。

【0067】図8に示す本発明の他の実施の形態では、防漏カフ16、16を形成しているシート20、20が、前記他のシートとして機能して、吸収コア12を覆う透液シート（トップシート）13aの両側に接合されている。この場合には、防漏カフ16、16を形成するシート20と外側シート11との接合境界22、22が吸収コア12の両側端12b、12bよりも中心側に入り込む構造となる。またこの場合には、前記防漏カフを

形成するシートが吸収コア12の両側端12b, 12bに接着接合された構造となる。または、図9に示すように透液シート(トップシート)13aが吸収コア12の両側端12b, 12bに接着接合された構造でもよい。

【0068】

【発明の効果】以上のように本発明では、吸収コアがトップシートなどで包み込まれるために、吸収コアが装着者の動きによって振じれ、片寄り、あるいは縫れを生じにくくなる。特に吸収コアの両側端をトップシートなどに接合すると、吸収コアの保持が確実になる。よって、トップシートと吸収コアとの間に剥がれや空間が生じにくくなり、吸収コアの液吸収機能を十分に発揮できるようになる。

【図面の簡単な説明】

【図1】本発明の一実施の形態としてパンツ型おむつを展開した状態を示す斜視図

【図2】パンツ型おむつを示す斜視図

【図3】図1のⅠⅠⅠ-ⅠⅠⅠ線の断面図

【図4】図3を横方向へ伸長した状態を示す断面図

【図5】第2の実施の形態を示すものであり、図4に相当する断面図

【図6】その他の実施の形態を示すものであり、図4に相当する断面図

【図7】その他の実施の形態を示すものであり、図4に相当する断面図

【図8】その他の実施の形態を示すものであり、図4に*

* 相当する断面図

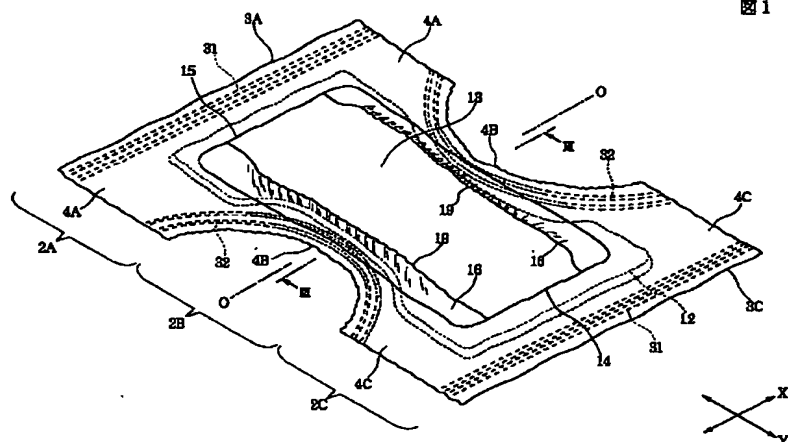
【図9】その他の実施の形態を示すものであり、図4に相当する断面図

【図10】従来の使い捨ておむつの断面図

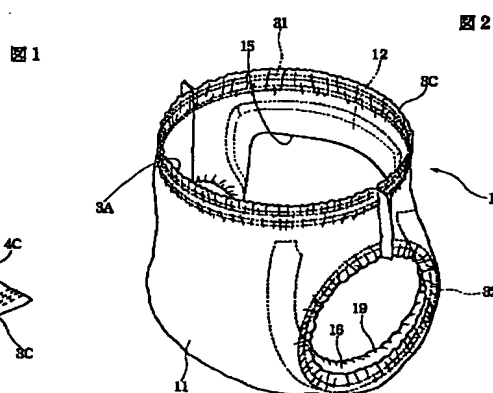
【符号の説明】

- 1 使い捨ておむつ
- 2A 前面部
- 2B 中間部
- 2C 後面部
- 3A 前ウェスト部
- 3C 後ウェスト部
- 4B 側部
- 11 外側シート
- 12 吸収コア
- 12a 吸収コアの表面
- 12b 吸収コアの側端
- 12c 吸収コアの裏面
- 13 トップシート
- 13a 透液シート
- 13b 他のシート
- 14 開口補助シート
- 15 開口窓
- 16, 16 防漏カフ
- 21 接合領域
- 22 接合境界
- 35 弾性部材

【図1】

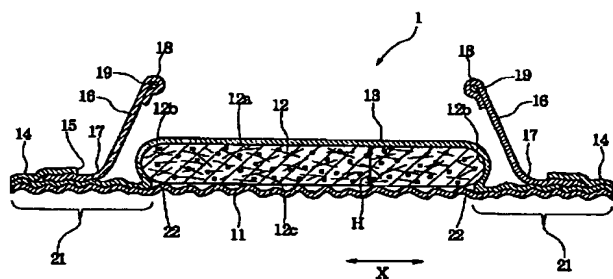


【図2】



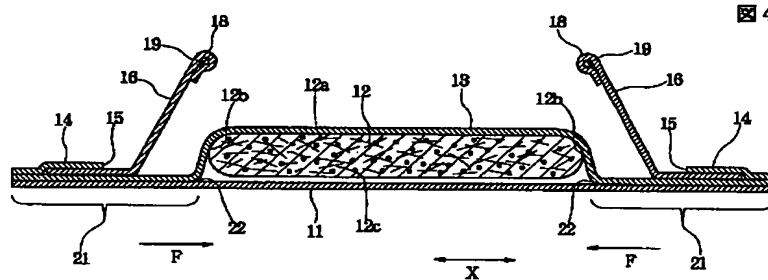
【図3】

図3



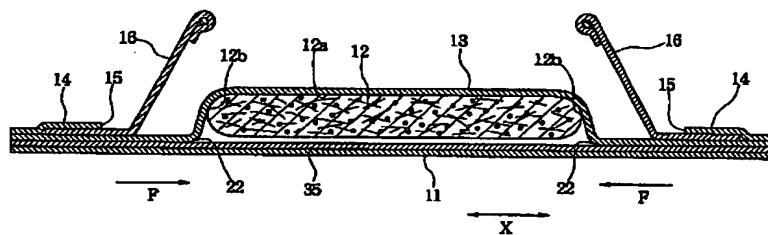
【図4】

図4



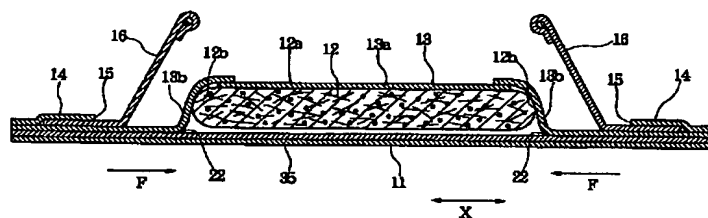
【図5】

図5



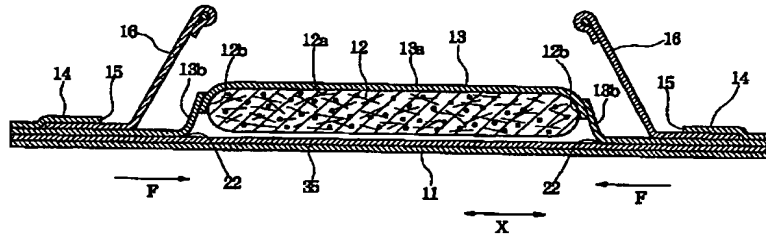
【図6】

図6



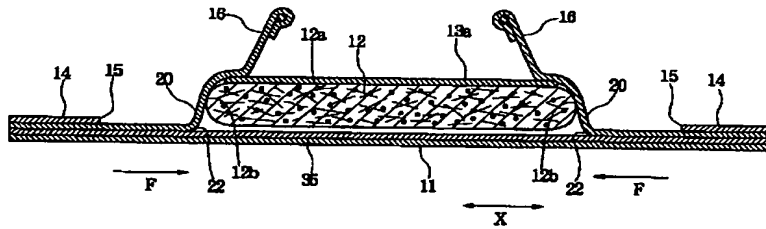
【図7】

図7



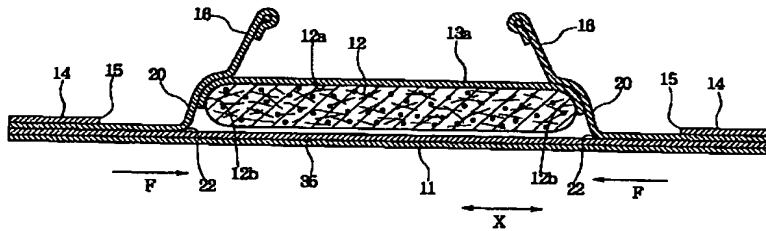
【図8】

図8



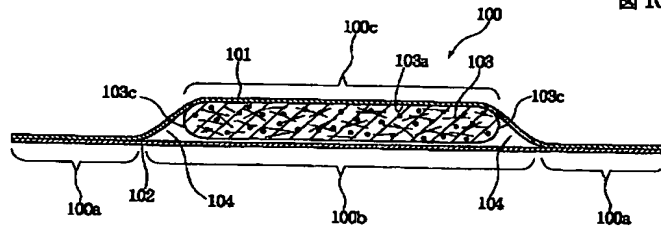
【図9】

図9



【図10】

図10



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13/49

13/54

13/511

13/00

[FI]

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A61F 13/00

A41B 13/02 E

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[Theme code (reference)]

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[F term (reference)]

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Epitome

(57) [Abstract]

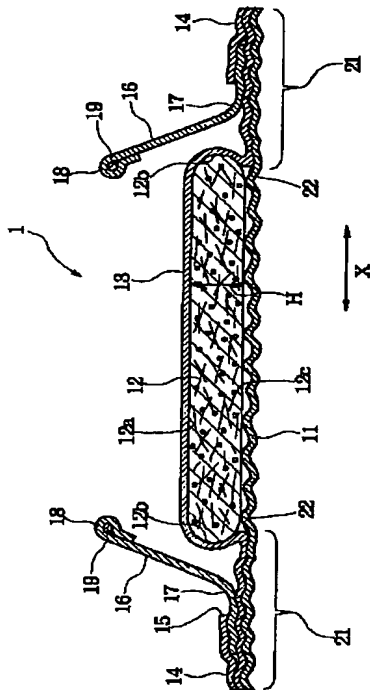
[Technical problem] In disposable diapers, such as a trousers mold and an open sand mold, since the absorption core was not held thoroughly conventionally at a top sheet, it was twisted to the core during wearing, deviation and **** arose, the clearance was formed between the absorption core and the top sheet, and there was a possibility that an absorption function might fall.

[Means for Solution] If a lateral elastic contraction function is given to the outside sheet 11, by things, the junction boundaries 22 and 22 of the top sheet 13 and the outside sheet 11 will enter inside side edge 12b of the top sheet 12, and the absorption core 12 will be certainly held with a top sheet. Therefore, it is hard coming to move the absorption core 12 by motion of a wearing person, and hard

coming to generate peeling etc. between the absorption core 12 and the top sheet 11.

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X



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CLAIMS

[Claim(s)]

[Claim 1] The disposable diaper with which it has the front section which is characterized by providing the following, and which is applied to a wearing person's venter, the pars intermedia applied to the crotch section, and the rear-face section applied to a backside, and the direction where a lengthwise direction, this, and the direction of the other side cross at right angles at the rear-face section was made into the longitudinal direction from the front section of said body The top sheet which is turned to a liquid receiving side and whose wrap part is liquid permeability at least about the core of the longitudinal direction on the front face of an upside of an absorption core The outside sheet joined to said top sheet directly or indirectly on both sides of said longitudinal direction It has the absorption core which intervenes between said top sheets and said outside sheets, and is the core of the lengthwise direction in said pars intermedia at least.

[Claim 2] other sheets are joined to the both sides of a **** sheet and its longitudinal direction directly or indirectly, and the top sheet of wrap liquid permeability forms an absorption core -- having -- **** -- said -- others -- the disposable diaper according to claim 1 with which the junction boundary of a sheet and said outside sheet has entered to the lateral core side rather than the both-sides edge of the longitudinal direction of said absorption core.

[Claim 3] The disposable diaper according to claim 1 or 2 with which said **** sheet, or the sheet besides the above are joined to the both-sides edge of said longitudinal direction of said absorption core in the field which includes the core of the lengthwise direction in said pars intermedia at least.

[Claim 4] The disposable diaper according to claim 1 to 3 with which an elastic grant means to make the junction boundary of said **** sheet located in lateral both sides or a sheet besides the above, and said outside sheet approach a lateral core side in the field which includes the core of the lengthwise direction in said pars intermedia at least is established.

[Claim 5] said **** sheet -- or -- said -- others -- or a sheet does not carry out elastic contraction to a longitudinal direction -- or the elastic contraction distortion of said longitudinal direction in the free condition of a diaper -- said **** sheet -- or -- said -- others -- the disposable diaper according to claim 4 with which the elastic grant means is greatly set up rather than the sheet.

[Claim 6] The disposable diaper with which it has the front section which is characterized by providing the following, and which is applied to a wearing person's venter, the pars intermedia applied to the crotch section, and the rear-face section applied to a backside, and the direction where a lengthwise direction, this, and the direction of the other side cross at right angles at the rear-face section was made into the longitudinal direction from the front section of said body The top sheet which is turned to a liquid receiving side and whose wrap part is liquid permeability about an absorption core at least The outside sheet joined to said top sheet directly or indirectly on both sides of said longitudinal direction It has the absorption core

which intervenes between said top sheets and said outside sheets, and is the core of the lengthwise direction in said pars intermedia at least.

[Claim 7] In the absorption core, other sheets are joined to the both sides of the longitudinal direction of a **** sheet directly or indirectly, and the top sheet of wrap liquid permeability is formed in them. [whether said **** sheet, and a sheet besides the above carry out elastic contraction to a longitudinal direction, and] Or the elastic contraction distortion of said longitudinal direction in the free condition of a diaper is greatly set up for the elastic grant means rather than said **** sheet, and the sheet besides the above. And the disposable diaper according to claim 6 with which said **** sheet, or the sheet besides the above are joined to the both-sides edge of said longitudinal direction of said absorption core in the field which includes the core of the lengthwise direction in said pars intermedia at least.

[Claim 8] Said outside sheet is a disposable diaper according to claim 4 to 7 with which it is the elastic shrinkage-characteristics sheet which carries out elastic contraction to a longitudinal direction, and elastic recoil of this sheet is made into said elastic grant means.

[Claim 9] This elastic member is a disposable diaper according to claim 4 to 7 which has fixed in the condition of having made it elongating [in / said elastic grant means is an elastic member which demonstrates lateral elastic recoil, and / between said absorption cores and outside sheets and / either the outside surface of an outside sheet] sideways.

[Claim 10] The disposable diaper according to claim 1 to 9 whose absorption of liquid the fixed-end section of said leakproof cuff is distant from the both-sides edge of the longitudinal direction of an absorption core, and is enabled in this both-sides edge at the absorption core in the field characterized by providing the following It is the sheet with which it extends in a lengthwise direction, and the leakproof cuff which opened spacing in the longitudinal direction and has been arranged is prepared in the liquid receiving side of said body, and said leakproof cuff has the fixed-end section and the free edge which are fixed to said body along a lengthwise direction. It has the elastic member which is attached in said sheet in said free edge or its near, and demonstrates the shrinkage force to said lengthwise direction, and is the core of the lengthwise direction in said pars intermedia at least.

[Claim 11] It extends in a lengthwise direction and the leakproof cuff which opened spacing in the longitudinal direction and has been arranged is prepared in the liquid receiving side of said body. Said leakproof cuff The sheet which has the fixed-end section and the free edge which are fixed to said body along a lengthwise direction, It has the elastic member which is attached in said sheet in said free edge or its near, and demonstrates the shrinkage force to said lengthwise direction. The disposable diaper according to claim 2 or 7 currently used as a sheet besides the above with which said sheet which forms a leakproof cuff was joined to the both sides of the longitudinal direction of said **** sheet.

[Claim 12] The disposable diaper according to claim 1 to 11 with which the both-

sides section of the longitudinal direction of said front section and the both-sides section of the longitudinal direction of said rear-face section were mutually joined, waist opening was formed at each edge of said front section and rear-face section, leg opening was formed in the both-sides section of said pars intermedia, and said body has accomplished the trousers mold.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the disposable diaper which is applied to the disposable diaper of a trousers mold or an open type, especially enabled it to hold an absorption core certainly with a top sheet.

[0002]

[Description of the Prior Art] Drawing 6 is the sectional view of the part applied to the crotch section of the conventional trousers mold diaper or an open-type diaper.

[0003] As shown in drawing 6 , this kind of disposable diaper 100 had the liquid permeability top sheet 101 turned to a wearing person side (liquid receiving side), and the outside sheet 102 of non-liquid permeability turned outside, and has pasted up the top sheet 101 and the outside sheet 102 of each other in the both-sides fields 100a and 100a of the longitudinal direction of a diaper. Moreover, in lateral central field 100b, the absorption core 103 which made fibrin material, such as pulp, the subject and contained superabsorbency resin intervenes between said top sheets 101 and outside sheets 102.

[0004] In the conventional production process of this kind of disposable diaper, the absorption core 103 is installed on the outside sheet 102 developed to the plane, and the top sheet 101 developed to the plane is carried on it. At this time, the field which pastes up the top sheet 101 is restricted to adhesion with surface 103a of the top sheet 101 and the absorption core 103 in upheaval top-face 100c by the side of

adhesion with the top sheet 101 in said both-sides fields 100a and 100a, and the outside sheet 102, and liquid receiving by the former.

[0005] That is, conventionally, adhesion of the top sheet 101 is performed only by the application of pressure of the vertical direction, consequently the top sheet 101 is pasted up only in the level surface like said both-sides field 100a or upheaval top-face 100c, and the top sheet 101 is not pasted up to the part which is not the level surface like both-sides edge 103c of the absorption core 103.

[0006] Thus, both-sides edge 103c of the absorption core 103 and the top sheet 101 are not pasted up, but further, since thickness is in the absorption core 103, space 104,104 has become is easy to be formed between the both-sides edges 103c and 103c of the absorption core 103, and the top sheet 101.

[0007]

[Problem(s) to be Solved by the Invention] As shown in drawing 6 , since the both-sides edges 103c and 103c and the top sheet 101 of the absorption core 103 do not paste up but space 104,104 is moreover formed between the both-sides edges 103c and 103c and the top sheet 101, the conventional disposable diaper of maintenance of the absorption core 103 by the top sheet 101 is inadequate. The holding power of the absorption core 103 in the direction of the left right of drawing 6 is weak especially.

[0008] If a wearing person moves by the condition of having been equipped with this disposable diaper, it will twist to the absorption core 103, and will get twisted in the deviation force pan to the force or a longitudinal direction, and the force will act in it. Especially, with a trousers mold diaper, in order to walk after the wearing person has carried the disposable diaper, or to crawl, said force given to said absorption core 103 becomes large.

[0009] If said force is acting continuously, in said central field 100b of a diaper, the absorption core 103 will be twisted or deviation will be generated. Consequently, the space 104,104 of the both-sides edges 103c and 103c of the absorption core 103 and the top sheet 101 is breadth and a cone. further — the absorption core 103 — right and left — when it twists to an either side, a wrinkle occurs in surface 103a of the absorption core 103, in the part of this wrinkle, adhesion between surface 103a of the absorption core 103 and the top sheet 101 separates, and there is a possibility that a float may be generated between surface 103a and the top sheet 101.

[0010] If the breadth of the above space 104 and the float between surface 103a and the top sheet 101 are generated, liquid, such as urine given to the top sheet 101, will not be efficiently absorbed by the absorption core 103, and will cause horizontal leakage, such as urine in a diaper.

[0011] It aims at offering the disposable diaper which enabled it to prevent lowering of an absorption function with an absorption core as this invention solves the above-mentioned conventional technical problem, stabilized maintenance of the absorption core by the top sheet, especially maintenance in a longitudinal direction

and it was hard to generate a twist, the deviation, or **** of an absorption core within a diaper.

[0012]

[Means for Solving the Problem] The front section in which the 1st this invention is put to a wearing person's venter, and the pars intermedia applied to the crotch section, In the disposable diaper with which it has the rear-face section applied to a backside, and the direction where a lengthwise direction, this, and the direction of the other side cross at right angles at the rear-face section was made into the longitudinal direction from the front section of said body The top sheet which is turned to a liquid receiving side and whose wrap part is liquid permeability at least about the core of the longitudinal direction on the front face of an upside of an absorption core, The outside sheet joined to said top sheet directly or indirectly on both sides of said longitudinal direction, In the field which has the absorption core which intervenes between said top sheets and said outside sheets, and includes the core of the lengthwise direction in said pars intermedia at least The junction boundary of said top sheet and said outside sheet is characterized by having entered to the lateral core side rather than the both-sides edge of the longitudinal direction of said absorption core.

[0013] In addition, the adhesive joint of said top sheet and outside sheet may be carried out directly, they may make other sheets intervene in between, and may be pasted up. Moreover, the wrap part of a top sheet should just be liquid permeability about an absorption core at least.

[0014] In the 1st this invention, the top sheet stuck to the both-sides edge of not only the liquid receiving side front face of an absorption core but an absorption core, and the top sheet has entered the both ends by the side of the rear face of an absorption core further. Therefore, it can restrain so that an absorption core may be wrapped in a top sheet from lateral both sides, and it is hard coming to generate a twist of an absorption core, deviation, and ****.

[0015] moreover, other sheets are joined to the both sides of a **** sheet and its longitudinal direction directly or indirectly, and the top sheet of wrap liquid permeability forms an absorption core — having — **** — said — others — the junction boundary of a sheet and said outside sheet may enter to the lateral core side rather than the both-sides edge of the longitudinal direction of said absorption core.

[0016] Here, in the field which includes the core of the lengthwise direction in said pars intermedia at least, it is desirable that said **** sheet, or the sheet besides the above are joined to the both-sides edge of said longitudinal direction of said absorption core.

[0017] Moreover, the front face and top sheet by the side of the liquid receiving of an absorption core are also usually pasted up mutually. If an outside sheet is furthermore pasted up the rear-face side of an absorption core, an absorption core can be further held certainly on a diaper.

[0018] By the 1st this invention, after pressurizing or fabricating said top sheet, or a sheet besides the above so that a both-sides edge may be wrapped from the front face of an absorption core, a top sheet and an outside sheet may be joined in the lateral both-sides section.

[0019] However, in the field which includes the core of the lengthwise direction in said pars intermedia at least, if an elastic grant means to make the junction boundary of said **** sheet located in lateral both sides or a sheet besides the above, and said outside sheet approach a lateral core side is established, it will be easy to form the structure of wrapping the both-sides edge of an absorption core in a top sheet.

[0020] in this case, said **** sheet — or — said — others — or a sheet does not carry out elastic contraction to a longitudinal direction — or the elastic contraction distortion of said longitudinal direction in the free condition of a diaper — said **** sheet — or — said — others — it is more desirable than a sheet that the direction of an elastic grant means is set up greatly.

[0021] It becomes easy to realize structure of wrapping the both-sides edge of an absorption core in a top sheet or other sheets, by combining such a top sheet or other sheets, and an elastic grant means using the shrinkage force of said elastic grant means.

[0022] Moreover, the front section in which the 2nd this invention is put to a wearing person's venter and pars intermedia applied to the crotch section, In the disposable diaper with which it has the rear-face section applied to a backside, and the direction where a lengthwise direction, this, and the direction of the other side cross at right angles at the rear-face section was made into the longitudinal direction from the front section of said body The top sheet which is turned to a liquid receiving side and whose wrap part is liquid permeability about an absorption core at least, The outside sheet joined to said top sheet directly or indirectly on both sides of said longitudinal direction, In the field which has the absorption core which intervenes between said top sheets and said outside sheets, and includes the core of the lengthwise direction in said pars intermedia at least An elastic grant means to make the junction boundary of said top sheet and said outside sheet approach a lateral core side is established. Said top sheet does not carry out elastic contraction to a longitudinal direction, or the elastic contraction distortion of said longitudinal direction in the free condition of a diaper is greatly set up for the elastic grant means rather than said top sheet. And in the field which includes the core of the lengthwise direction in said pars intermedia at least, it is characterized by joining said top sheet to the both-sides edge of said longitudinal direction of said absorption core.

[0023] An absorption core moreover, the top sheet of wrap liquid permeability Other sheets are joined to the both sides of the longitudinal direction of a **** sheet directly or indirectly, and it is formed in them. [whether said **** sheet, and a sheet besides the above carry out elastic contraction to a longitudinal direction,

and] Or the elastic contraction distortion of said longitudinal direction in the free condition of a diaper is greatly set up for the elastic grant means rather than said **** sheet, and the sheet besides the above. And in the field which includes the core of the lengthwise direction in said pars intermedia at least, said **** sheet, or the sheet besides the above may be joined to the both-sides edge of said longitudinal direction of said absorption core.

[0024] This 2nd invention has joined the both-sides edge of said longitudinal direction of an absorption core, said top sheet, or other sheets further on the assumption that an elastic grant means to make the junction boundary of a top sheet, or an other sheets and an outside sheet visit a lateral core is established.

[0025] this 2nd invention uses an elastic grant member — the both-sides edge of an absorption core — a top sheet or other sheets — certain — it can wrap — moreover — junction on the both-sides edge of an absorption core, a top sheet, or other sheets — the absorption core within a diaper — getting twisted — etc. — it is hard coming to be generated

[0026] In the above, said outside sheet is the elastic shrinkage-characteristics sheet which carries out elastic contraction to a longitudinal direction, for example, a contractile nonwoven fabric, a shrinkable film, etc., and let elastic recoil of this sheet be said elastic grant means.

[0027] Or said elastic grant means is the elastic member which demonstrates lateral elastic recoil, for example, two or more elastic bands, and this elastic member has fixed in the condition of having made it elongating sideways between said absorption cores and outside sheets and in either the outside surface of an outside sheet.

[0028] Furthermore by the 1st this invention and 2nd this invention, to the liquid receiving side of said body It extends in a lengthwise direction and the leakproof cuff which opened spacing in the longitudinal direction and has been arranged is prepared. Said leakproof cuff The sheet which has the fixed-end section and the free edge which are fixed to said body along a lengthwise direction, In the field which has the elastic member which is attached in said sheet in said free edge or its near, and demonstrates the shrinkage force to said lengthwise direction, and includes the core of the lengthwise direction in said pars intermedia at least It is desirable for the fixed-end section of said leakproof cuff to be distant from the both-sides edge of the longitudinal direction of an absorption core, and for absorption of liquid of it to be enabled at this both-sides edge at the absorption core.

[0029] It extends in a lengthwise direction and the leakproof cuff which opened spacing in the longitudinal direction and has been arranged is prepared in the liquid receiving side of said body. Furthermore, said leakproof cuff The sheet which has the fixed-end section and the free edge which are fixed to said body along a lengthwise direction, It has the elastic member which is attached in said sheet in said free edge or its near, and demonstrates the shrinkage force to said lengthwise direction. Said sheet which forms a leakproof cuff is used as a sheet besides the above joined to the both sides of the longitudinal direction of said **** sheet. The

junction boundary of other sheets and an outside sheet may enter into the core side rather than the absorption core, or the sheet besides the above may be joined to the both-sides edge of the longitudinal direction of an absorption core.

[0030] The both-sides section of the longitudinal direction of said front section and the both-sides section of the longitudinal direction of said rear-face section are joined mutually, waist opening is formed at each edge of said front section and rear-face section, leg opening is formed in the both-sides section of said pars intermedia, and this invention is still more effective when said body is what has accomplished the trousers mold.

[0031] In the case of a trousers mold, it is in the condition equipped with a diaper, and is effective at a twist of a top sheet, deviation, and the point that **** can be prevented, by holding the absorption core with which it crawls, and the crotch section is equipped with a wearing person a walk or in order to turn with the top sheet. However, this invention is applicable also to an open-type diaper.

[0032]

[Embodiment of the Invention] The sectional view showing the condition before the sectional view of the III-III line of drawing 1 carries out the perspective view which drawing 1 developed the disposable diaper of a trousers mold as a gestalt of 1 operation of this invention, and was shown from the liquid-permeable sheet side, the perspective view showing the disposable diaper of the trousers mold which showed drawing 2 to drawing 1, and drawing 3 and an elastic grant means carries out elastic contraction of drawing 4, and drawing 5 are the sectional views of the disposable diaper in which the gestalt of the 2nd operation is shown.

[0033] The disposable diaper 1 of this invention shown in drawing 2 is beforehand fabricated by the trousers mold, and has the shape of so-called hourglass pattern as shown in drawing 1 in the state of the expansion before the shaping. In the expansion condition shown in drawing 1, this diaper 1 has pars intermedia 2B with which those both-sides sections 4B and 4B are applied by the femoral region at the time of an activity with front section 2A applied by a wearing person's abdomen at the time of an activity, and rear-face section 2C applied a bottom part and/or back at the time of an activity, and the crotch section is equipped. The direction from said front section 2A to said rear-face section 2C through pars intermedia 2B is made into the direction (lengthwise direction) of Y, and the direction which intersects perpendicularly with it is made into the direction of X (longitudinal direction).

[0034] As this disposable diaper 1 is shown in the sectional view of drawing 3, the absorption core 12 is carried on the outside sheet 11, and a it top is covered with the liquid permeability top sheet 13. Moreover, the top sheet 13 top was covered by the opening auxiliary seat 14 of non-liquid permeability, and said top sheet 13 has exposed it in the opening aperture 15 which carries out opening to the center section of this opening auxiliary seat 14.

[0035] All the appearance configurations of said outside sheet 11, the top sheet 13,

and the opening auxiliary seat 14 are the sandglass molds of the almost same dimension.

[0036] The adhesive joint is carried out mutually [said outside sheet 11 and top sheet 13] in a lateral (the direction of X) outside field, and the outside field of a lengthwise direction (the direction of Y). This adhesive joint uses hot melt adhesive. With the sectional view of pars intermedia 2B shown in drawing 3 , 21 and 21 show the junction field of the outside sheet 11 and the top sheet 13. Moreover, signs 22 and 22 show the edge by the side of the core of the junction boundary of the outside sheet 11 and the top sheet 13, i.e., the longitudinal direction of said junction fields 21 and 21.

[0037] As shown in drawing 3 , when the disposable diaper 1 is in a free condition, said junction boundaries 22 and 22 have entered to the longitudinal direction core side rather than the both-sides edges 12b and 12b of the longitudinal direction of the absorption core 12, consequently the both-sides edges 12b and 12b of the longitudinal direction of surface 12a by the side of the liquid receiving of the absorption core 12 and the absorption core 12 are wrapped in the top sheet 13, and they are made and held.

[0038] Moreover, surface 12a of the absorption core 12 and the top sheet 13 of each other are pasted up with the hot melt adhesive applied the shape of a spiral, and in the shape of a wavy line. Furthermore also in the both-sides edges 12b and 12b of the absorption core 12, the absorption core 12 and the top sheet 13 have pasted up with hot melt adhesive etc.

[0039] In addition, although the top sheet 13 has the desirable thing of the direction of thickness H of a core pasted up mostly all over the districts in the both-sides edges 12b and 12b of the absorption core 12, it is more desirable than the one half of thickness H of a core that the adhesive joint of the both-sides edges 12b and 12b and the top sheet 13 of the absorption core 12 is carried out to the liquid receiving side (on a graphic display) at least.

[0040] Moreover, rear-face 12c of the absorption core 12 and the outside sheet 11 may paste up with hot melt adhesive etc.

[0041] Although it is desirable to cross throughout the lengthwise direction (the direction of Y) of the disposable diaper 1, and to be formed as for the structure where the absorption core 12 is wrapped in the top sheet 13 as shown in drawing 3 , in pars intermedia 2B, the thing which are shown in drawing 3 and for which it wraps in and structure is constituted is required at least. That is, in the predetermined die-length range of the lengthwise direction containing main O-O of the lengthwise direction of pars intermedia 2B applied to the crotch section, when [at which it be shown in drawing 3] it wrapped in, structure be realized and a motion of the crotch section act on the absorption core 12, the condition that the absorption core 12 be certainly held from the longitudinal direction with the top sheet 13 can be maintained.

[0042] Therefore, at least, in pars intermedia 2B, it is twisted to the absorption core 12 and is hard coming to generate deviation and ****. Consequently, it is hard

coming to generate the opening by adhesion peeling etc. between side edge 12b of the absorption core 12, and the top sheet 13, and between surface 12a of the absorption core 12, and the top sheet 13, and an absorption function with the absorption core 12 can fully be demonstrated. Moreover, since side edge 12b of the absorption core 12 and the top sheet 13 have stuck, sufficient liquid absorption function can be demonstrated also in said side edge 12b.

[0043] Said top sheet 13 is formed for the hydrophobic fiber by which hydrophilic processing was carried out, or hydrophilic fiber, for example, are point bond, Ayr through, span bond, a span ball-race nonwoven fabric, etc. The superintendent officer is 10 - 40 g/m². Moreover, said opening auxiliary seats 14 are a nonwoven fabric or said point bond nonwoven fabrics which were *****ed), such as point bond formed for hydrophobic fiber, etc.

[0044] With the gestalt of implementation of this invention, said both top sheets 13 and opening auxiliary seats 14 are formed in the longitudinal direction (the direction of X) with the nonwoven fabric which does not carry out elastic contraction.

[0045] The elastic contraction to a longitudinal direction (the direction of X) is possible for said outside sheet 11, for example, it is an elasticity nonwoven fabric which has elastic contraction functions, such as point bond which contains a crimped staple 80% or more, span bond, and a span ball race. Or the outside sheet 11 is an elasticity film of non-liquid permeability which has the elastic contraction function formed with thermoplastics, such as an olefin system, a styrene system, and an urethane system. Anyway, the superintendent officers (basis weight) of the outside sheet 11 are 10-40g/m².

[0046] When using an elasticity nonwoven fabric as an outside sheet 11, it is desirable to give ***** etc. and to reduce a liquid transparency function. Or a waterproof resin film may be infixed between the outside sheets and the absorption cores 12 which were formed with the elasticity nonwoven fabric. Any of elasticity and non-elasticity are sufficient as the resin film in this case.

[0047] Moreover, when using the elasticity film of non-liquid permeability which has an elastic contraction function as an outside sheet 11, it is good also considering this outside sheet 11 as an outermost-layer-of-drum sheet of a diaper, or the laminating of the nonwoven fabric is carried out to the outside of an elasticity film, and it is good also considering this nonwoven fabric as an outermost-layer-of-drum sheet. In this case, nonwoven fabrics may be any of elasticity and non-elasticity.

[0048] That is, as long as it uses the elasticity sheet which demonstrates an elastic contraction function as an outside sheet 11, other sheets by which a laminating is carried out to this may be elasticity, or may be non-elasticity.

[0049] The absorption core 12 is formed with the mixture of an absorptivity raw material, for example, grinding pulp, or grinding pulp, and a high absorptivity polymer etc., and the mixture of grinding pulp or grinding pulp, and a high absorptivity polymer is wrapped in absorptivity sheets, such as tissue.

[0050] He is trying to wrap and put surface 12a of the absorption core 12, and the

both-sides edges 12b and 12b with the top sheet 13 with the gestalt of operation of this invention, using the difference of elastic contraction distortion to the direction of X of the outside sheet 11 and the top sheet 13, as shown in drawing 3. Therefore, it is desirable to constitute so that the outside sheet 11 may demonstrate an elastic contraction function as mentioned above and the top sheet 13 may not demonstrate an elastic contraction function.

[0051] However, the top sheet 13 has elasticity and may demonstrate a lateral elastic contraction function. In this case, in the free condition of the disposable diaper 1, it is required for the amount of distortion of the longitudinal direction of the top sheet 13 to be small to the amount of distortion by elastic contraction of the longitudinal direction of the outside sheet 11. Also when the top sheet 13 does not produce the elastic contraction distortion by the longitudinal direction, it is desirable that the difference of the amount of contraction distortion of the longitudinal direction of the outside sheet 11 in a free condition and the amount of contraction distortion of the longitudinal direction of the top sheet 13 is [include] 30% or less at 10% or more. The absorption core 12 cannot fully be wrapped in the top sheet 13 as the difference of the amount of distortion is said under range. Moreover, when the difference of the amount of distortion exceeds said range, the compressive force of the longitudinal direction which acts on the absorption core 12 becomes large too much, and there is a possibility that a wrinkle may occur to the absorption core 12.

[0052] In addition, the amounts of distortion are $(L1-L0) / L0 \times 100(\%)$, when die length after elastic contraction of the flat-surface part of a sheet when the outside sheet 11 carries out elastic contraction of the die length of the flat-surface part of a sheet when joining the outside sheet 11 and the top sheet 13 in said junction fields 21 and 21, as shown in L0 and drawing 3 is set to L1.

[0053] Moreover, the leakproof cuffs 16 and 16 are formed inside the both-sides sections 4B and 4B of the longitudinal direction (the direction of X) of the disposable diaper 1. As these leakproof cuffs 16 and 16 are formed with a hydrophobic sheet and it is shown in drawing 3, that end face section is inserted between the top sheet 13 and the opening auxiliary seat 14, and the adhesive joint of said end face section is carried out to the top sheet 13 and the opening auxiliary seat 14, respectively.

[0054] At drawing 3, signs 17 and 17 show the fixed end of the leakproof cuffs 16 and 16. As shown in drawing 1, the end face section of said leakproof cuffs 16 and 16 is in the location distant from the both-sides edges 12b and 12b of the longitudinal direction of said absorption core 12 in the range of the predetermined die length of the lengthwise direction containing main O-O of the lengthwise direction (the direction of Y) of pars intermedia 2B. Moreover, the elastic members 19 and 19 which demonstrate elastic recoil are formed in the lengthwise direction (the direction of Y) in the free end 18 and 18 of the leakproof cuffs 16 and 16.

[0055] As shown in drawing 3, in this disposable diaper 1 Since the top sheet 13 has always stuck to surface 12a of the absorption core 12, and the both-sides

edges 12b and 12b, The body fluid with which body fluid, such as urine given to the top sheet 13, penetrated the top sheet 13, and tended to be absorbed by the absorption core 12 from surface 12a, and flowed in the longitudinal direction both-sides section also penetrates the top sheet 13, and tends to be absorbed by the absorption core 12 from the both-sides edges 12b and 12b. That is, the surface area which absorbs the body fluid of the absorption core 12 becomes very large.

Moreover, at least, since the fixed end 17 and 17 of the leakproof cuffs 16 and 16 is distant from the both-sides edges 12b and 12b of the absorption core 12 in pars intermedia 2B, it will be absorbed by said side edge section 12b, without the body fluid which flowed on longitudinal direction both sides of a diaper resulting between side edge section 12b of the leakproof cuff 16 and the absorption core 12, and being prevented by the leakproof cuff 16.

[0056] Next, the production process of said disposable diaper 1 is explained. As shown in drawing 4, where the outside sheet 11 is elastically expanded in 10 – 30% of range to a longitudinal direction (the direction of X), the absorption core 12 is installed in the center section of the longitudinal direction of the outside sheet 11. At this time, rear-face 12c of the absorption core 12 may be pasted up on the outside sheet 11, and it is not necessary to paste up.

[0057] Next, it carries on the outside sheet 11 and the absorption core 12, without expanding the top sheet 13 in the free condition of X, i.e., the direction. At this time, hot melt adhesive is applied throughout the rear face (field suitable for the absorption core 12) of the top sheet 13 (lateral overall length). And the end face section of the leakproof cuffs 16 and 16 is further installed through hot melt adhesive on the top sheet 13, and the opening auxiliary seat 14 is further installed through hot melt adhesive from on the.

[0058] At this time, each sheet is preferably pressurized from the upper and lower sides in the junction fields 21 and 21. Moreover, in surface 12a of the absorption core 12, you may pressurize lightly from the upper part of the top sheet 13.

[0059] After spreading of said adhesives, and a laminating process, if the expanding force to the direction of X of the outside sheet 11 is removed, the outside sheet 11 will carry out elastic contraction in the direction of F towards the center of a longitudinal direction. At this time, as the junction boundaries 22 and 22 of the outside sheet 11 and the top sheet 13 approach towards a lateral (the direction of X) core, consequently it is shown in drawing 3, said junction boundaries 22 and 22 enter to a core side rather than the both-sides edges 12b and 12b of the absorption core 12. Moreover, by said shrinkage force of the outside sheet 11, the top sheet 13 is pushed against the both-sides edges 12b and 12b of the absorption core 12, and said both-sides edges 12b and 12b and top sheet 13 paste up mutually with the adhesives applied to the rear face of the top sheet 13.

[0060] Next, flank 4A of the longitudinal direction of front section 2A and flank 4C of the longitudinal direction of rear-face section 2C are joined mutually, and waist opening is formed by each edge of front section 2A and rear-face section 2C, i.e.,

waist edge 3A, and 3C. Furthermore, in both-sides section 4B of pars intermedia 2B, leg opening is formed, respectively and the disposable diaper of a trousers mold as shown in drawing 2 is formed.

[0061] In addition, with the gestalt of operation shown in drawing 1 and drawing 2 , as an elastic member (elastic band) 31 shows said waist edge 3A and 3C in a longitudinal direction at a mounting eclipse and drawing 2 , waist gathers are formed in waist opening of the elastic recoil of said elastic member 31. As the elastic member 32 by the side of a leg (elastic band) shows said both-sides section 4B at a mounting eclipse and drawing 2 , leg gathers (cuff by the side of a leg) are formed in the perimeter of leg opening of the elastic recoil of said elastic member 32. Furthermore, said leakproof cuffs 16 and 16 start towards a wearing person inside said leg opening.

[0062] Next, drawing 5 is the sectional view showing the condition of having made it elongating to a longitudinal direction, the same with the disposable diaper of the gestalt of operation of the 2nd of this invention being shown, and being shown in drawing 4 .

[0063] In the gestalt of operation shown in drawing 5 , the outside sheet 11 does not have an elastic contraction function, or is formed with the small nonwoven fabric or the waterproof resin film of elastic contraction. However, the elastic member 35 which demonstrates elastic recoil in the direction of X intervenes between the top sheet 13 and the outside sheet 11. This elastic member 35 is an elastic band prolonged in a longitudinal direction, in the predetermined die-length range of the lengthwise direction (the direction of Y) containing main O-O of pars intermedia 2B shown in drawing 1 , is put in order two or more and prepared in the lengthwise direction. This elastic member 35 is pasted up on the outside sheet 11 over that overall length to the longitudinal direction in the condition of having been lengthened 10 to 30%.

[0064] At drawing 5 , where said elastic member 35 is extended about 10 to 30% in the direction of X Since it is joined to the outside sheet 11, if this is changed into a free condition, the outside sheet 11 will carry out elastic contraction toward a lateral core. The junction boundaries 22 and 22 move to a lateral core side rather than the both-sides edges 12b and 12b of the absorption core 12, and the absorption core 12 is wrapped in the top sheet 13 like drawing 3 .

[0065] In addition, although the outside sheet 11 and the top sheet 13 formed in the top face of the absorption core 12 with the liquid permeability nonwoven fabric of one sheet etc. are form with the gestalt of said operation, as for this top sheet 13, processing from which a wrap part is liquid permeability about surface 12a of the absorption core 12 upside, and a wrap part serves as non-liquid permeability by hydrophobicity in the lateral both sides section (both sides edges 12b and 12b) may be make.

[0066] The top sheet 13 is constituted from wrap **** sheet 13a and other sheet 13b joined to the both sides of the longitudinal direction (the direction of X) of ****

in the absorption core by the gestalt of other operations of this invention of drawing 6 . Other sheet 13b may be liquid permeability, or may be non-liquid permeability. In this case, if the outside sheet 11 carries out elastic contraction as shown in drawing 3 , the junction boundaries 22 and 22 of sheet 13b besides the above and the outside sheet 11 will enter into a core side rather than the both-sides edges 12b and 12b of the absorption core 12. And the adhesive joint of the sheet 13b besides the above is carried out to the both-sides edges 12b and 12b of said absorption core 12. Or as shown in drawing 7 , the adhesive joint of the **** sheet 13a may be made to be carried out to the both-sides edges 12b and 12b of the absorption core 12. In addition, other sheet 13b may be the opening auxiliary seats 14.

[0067] With the gestalt of other operations of this invention shown in drawing 8 , the sheets 20 and 20 which form the leakproof cuffs 16 and 16 function as a sheet besides the above, and are joined to the both sides of wrap **** sheet (top sheet) 13a in the absorption core 12. In this case, the junction boundaries 22 and 22 of the sheet 20 and the outside sheet 11 which form the leakproof cuffs 16 and 16 serve as the structure of entering into a core side rather than the both-sides edges 12b and 12b of the absorption core 12. Moreover, it becomes the structure where the adhesive joint of the sheet which forms said leakproof cuff was carried out to the both-sides edges 12b and 12b of the absorption core 12 in this case. Or the structure where the adhesive joint of the **** sheet (top sheet) 13a was carried out to the both-sides edges 12b and 12b of the absorption core 12 as shown in drawing 9 is sufficient.

[0068]

[Effect of the Invention] As mentioned above, since an absorption core is wrapped in a top sheet etc., an absorption core is twisted by motion of a wearing person, and stops easily being able to produce deviation or **** in this invention. If the both-sides edge of an absorption core is especially joined to a top sheet etc., maintenance of an absorption core will become certain. Therefore, between a top sheet and an absorption core, it is hard coming to generate peeling and space, and the liquid absorption function of an absorption core can fully be demonstrated now.

[Translation done.]

* NOTICES *

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view shown where a trousers mold diaper is developed as a gestalt of 1 operation of this invention

[Drawing 2] The perspective view showing a trousers mold diaper

[Drawing 3] The sectional view of the III-III line of drawing 1

[Drawing 4] The sectional view showing the condition of having elongated drawing 3 to the longitudinal direction

[Drawing 5] The sectional view which shows the gestalt of the 2nd operation and is equivalent to drawing 4

[Drawing 6] The sectional view which shows the gestalt of other operations and is equivalent to drawing 4

[Drawing 7] The sectional view which shows the gestalt of other operations and is equivalent to drawing 4

[Drawing 8] The sectional view which shows the gestalt of other operations and is equivalent to drawing 4

[Drawing 9] The sectional view which shows the gestalt of other operations and is equivalent to drawing 4

[Drawing 10] The sectional view of the conventional disposable diaper

[Description of Notations]

1 Disposable Diaper

2A Front section

2B Pars intermedia

2C Rear-face section

3A Before waist section

3C After waist section

4B Flank

11 Outside Sheet

12 Absorption Core

12a The front face of an absorption core

12b The side edge of an absorption core

12c The rear face of an absorption core

13 Top Sheet

13a **** sheet

13b Other sheets

14 Opening Auxiliary Seat

15 Opening Aperture

16 16 Leakproof cuff

21 Junction Field

22 Junction Boundary

35 Elastic Member

[Translation done.]

*** NOTICES ***

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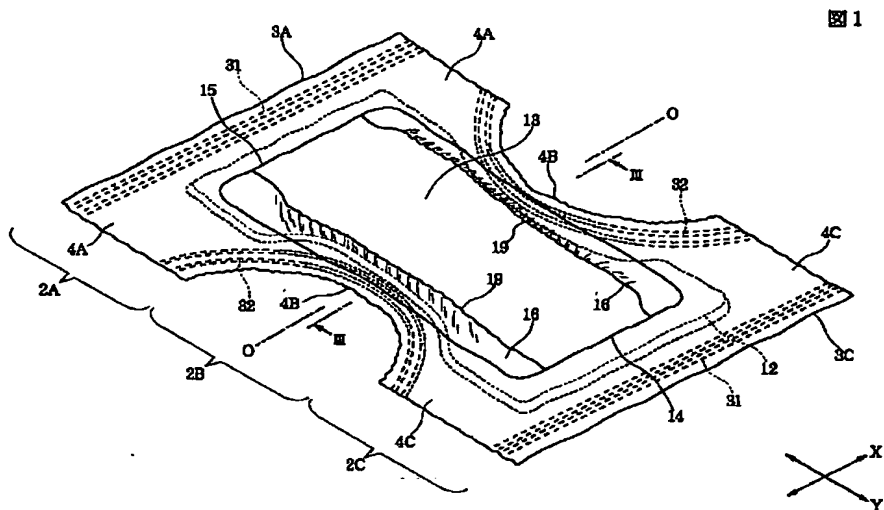
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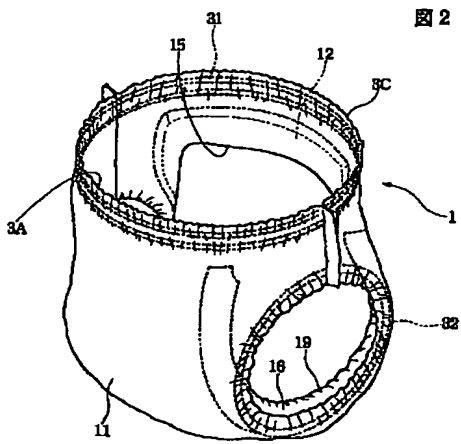
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DRAWINGS

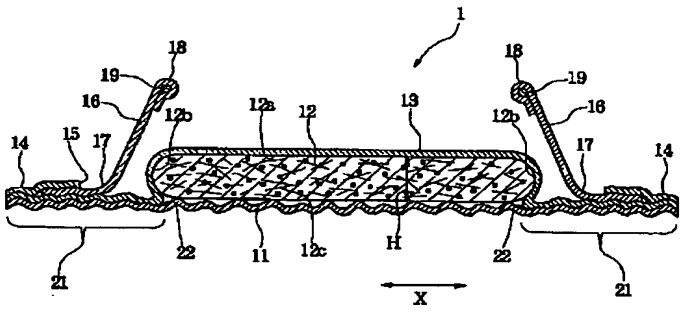
[Drawing 1]





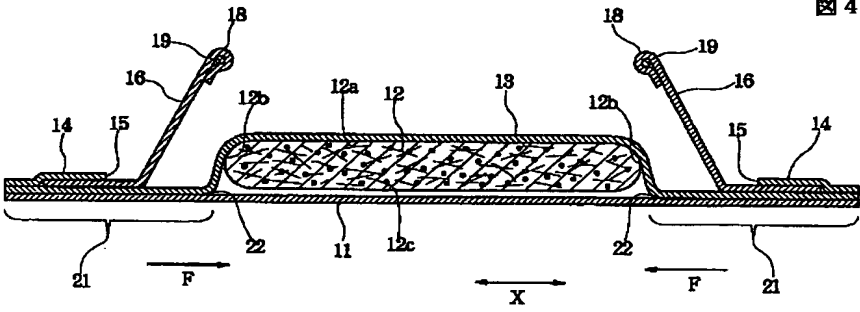
[Drawing 3]

Figure 3



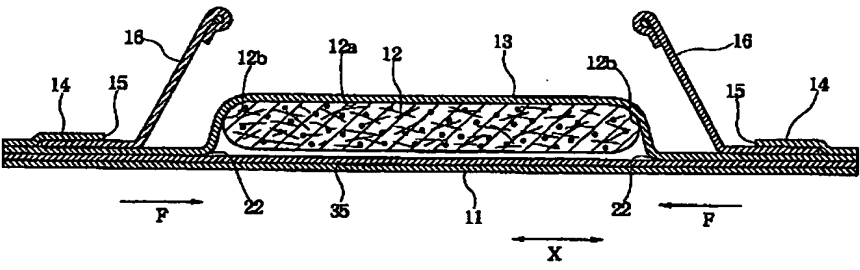
[Drawing 4]

Figure 4



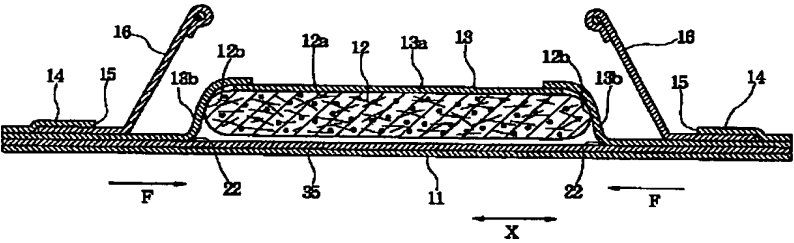
[Drawing 5]

Figure 5



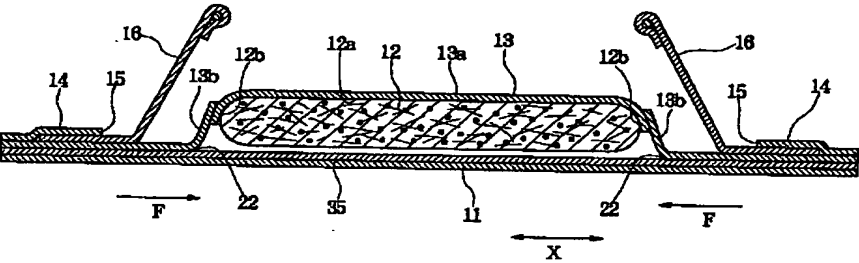
[Drawing 6]

図 6



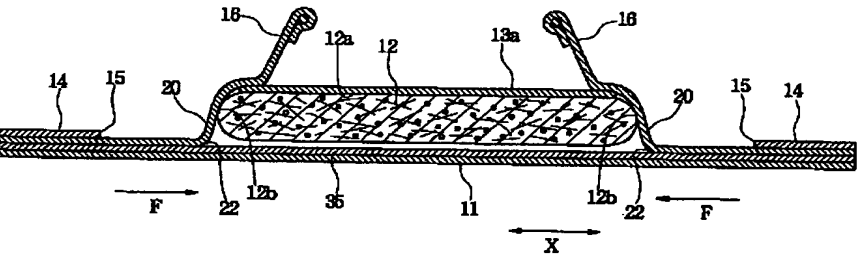
[Drawing 7]

図 7



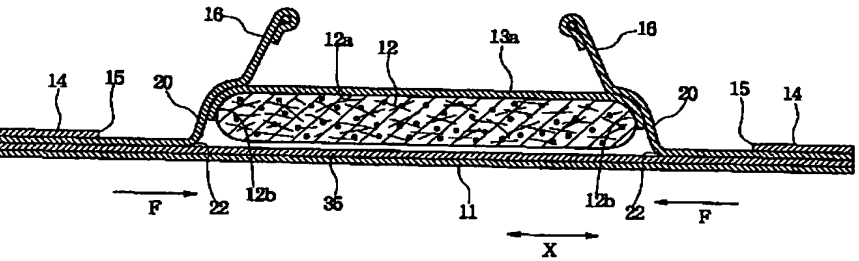
[Drawing 8]

図 8

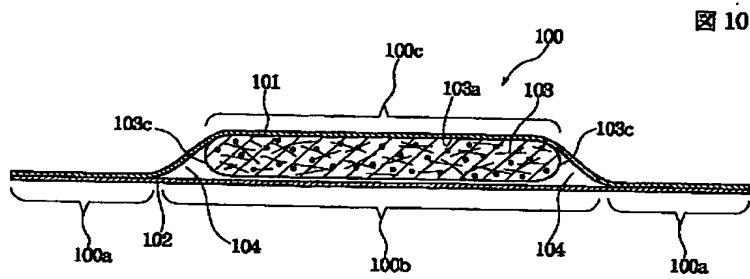


[Drawing 9]

図 9



[Drawing 10]



[Translation done.]